

REMARKS

Claims 2-27 are present in the application. In view of the remarks that follow, Applicants respectfully request reconsideration.

Objection to Premature Finality

The present Office Action is designated as a "final" rejection. However, the finality of the Office Action is respectfully traversed. MPEP 706.07(a) specifies that an Office Action shall not be final "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement". The present Office Action cites and provides, for the first time, a copy of U.S. Provisional Application No. 60/482,913, and then uses it to make a new ground of rejection as to "original" claims that have never been amended (for example independent Claim 15). It is respectfully submitted that this is very clearly a situation "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement". Consequently, as explained in MPEP §706.07(a), the present Office Action cannot properly be designated as a "final" rejection under these circumstances. It is therefore respectfully submitted that the finality of the present Office Action is not proper and must be withdrawn. Applicants respectfully request notice that the finality of the present Office Action has been withdrawn

Interview Summary

Following receipt of the present Office Action, the undersigned contacted Examiner Ko to discuss the outstanding issues in the present application. A telephone interview occurred on August 5, 2009. The undersigned pointed out that the finality of the Office Action is premature (for the reasons set forth above), and also reiterated some points from the remarks of Applicants' last Response. No agreement was reached.

Comment Regarding Hazelton U.S. Patent Application Publication No. 2006/0023185

The present Office Action contains claim rejections based on Hazelton U.S. Patent Application Publication No. 2006/0023185. The Hazelton '185 publication claims the priority of a PCT application, which in turn claims the priority of two provisionals. To predate the present application, the Examiner must rely on the filing date of one of the two provisionals.

Consequently, to the extent that any rejection relies on subject matter from Hazelton '185, the Examiner must carry the burden of making a separate and independent showing that all of the subject matter relied on for the rejection is fully disclosed in each of (1) one and only one of the provisionals, (2) the PCT application, and (3) the Hazelton U.S. publication. The Office Action fails to do so. For example, as to some claims (e.g. dependent Claims 2-5, 10, 14, 16-19 and 23-27), the Examiner fails to make any showing at all with respect to the provisional and PCT. And as to other claims (e.g. independent Claims 6, 9, 15 and 20), there is only a vague reference to the PCT application and/or the provisional(s), which falls well short of the Examiner's burden of proof. Similarly, at lines 14-19 on page 12 of the present Office Action, the Examiner makes a conclusory and unsupported assertion that all of the subject matter relied on from Hazelton '185 is in fact disclosed in the PCT application and the provisionals. However, unsupported conclusory assertions fall well short of the Examiner's burden of proof. In previously-filed Responses, Applicants have repeatedly pointed out that the Examiner has failed to carry the burden of establishing that Hazelton '185 is actually prior art with respect to the present application. In the present Office Action, the Examiner has still not bothered to properly carry the burden of establishing that, as to the specific subject matter for which the Examiner relies on Hazelton '185, Hazelton is actually prior art with respect to the present application.

Summarizing, the Examiner has the burden of proving several points that are all necessary to establish that teachings in Hazelton '185 are "prior art" with respect to the present application. But to date, the Examiner has failed to make all the necessary showings. Absent those showings, the Examiner has not carried the burden of proving that any teachings in Hazelton '185 qualify as prior art with respect to the present application. Accordingly, the §102

and §103 rejections based on Hazelton '185 are all defective, and fail to properly establish prima facie cases of either anticipation or obviousness. As a result, it is respectfully submitted that the claim rejections based on Hazelton '185 must be withdrawn.

Independent Claim 15

Independent Claim 15 stands rejected under 35 U.S.C. §102 as anticipated by Hazelton U.S. Patent Application Publication No. 2006/0023185. This ground of rejection is respectfully traversed, for the following reasons.

HAZELTON HAS NOT BEEN SHOWN TO BE PRIOR ART

As discussed in more detail above, the Examiner has the burden of proving several points that are all necessary to properly establish that teachings in Hazelton '185 constitute "prior art" with respect to the present application. But to date, the Examiner has failed to prove all of the necessary points. Absent proof of each of these points, the Examiner has failed to carry the burden of proving that any of the teachings from Hazelton '185 qualify as prior art with respect to the present application. As to Claim 15, the last two lines on page 2 of the present Office Action make a vague reference to the PCT application and one provisional but, as discussed above, this falls well short of the Examiner's burden of proof. Accordingly, the §102 rejection of Claim 15 based on Hazelton '185 is defective, and fails to properly establish a prima facie case of anticipation. As a result, it is respectfully submitted that the rejection of Claim 15 based on Hazelton '185 is incomplete and improper, and must be withdrawn.

THE EXAMINER IMPROPERLY IGNORES FUNCTIONAL LANGUAGE

Independent Claim 15 is an apparatus claim. In Section 16 on page 13, the Office Action asserts that the functional language in apparatus Claim 15 is a statement of intended use, and does not constitute structure. However, Claim 15 sets forth a combination of "means-plus-function" limitations, and all of the functional language in Claim 15 is embedded in these means-

plus-function limitations. Consequently, under the Patent Statute (6th paragraph of §112), all of the functional language in Claim 15 is by definition structural limitations, rather than a statement of intended use. The Examiner's failure to treat means-plus-function language in Claim 15 as structure is a direct violation of the Patent Statute. Moreover, the Examiner's failure to give weight to this functional language when evaluating the patentability of Claim 15 renders the Office Action incomplete, because Applicants were entitled to have this functional language considered on the merits.

HAZELTON DOES NOT DISCLOSE WHAT THE OFFICE ACTION SAYS IT DOES

Citing and quoting relevant case law, the PTO explains in MPEP §2131 that, under 35 U.S.C. §102:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). . . . "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In other words, to anticipate a claim under §102, a reference (1) must disclose each and every element recited in the claim, and (2) must also disclose these elements arranged in the manner recited in the claim. Applicants' Claim 15 expressly recites:

means for performing a light exposing operation on the wafer using an objective lens immersed in the first fluid; and
means for providing a surfactant to the first fluid to form a second fluid to reduce an adherence of floating defects to the wafer or the objective lens.

On page 2 of the present Office Action, the Examiner asserts that Hazelton '185 discloses in Figure 10:

. . . the pipe on top of a valve #25 . . . which is fully capable of providing a surfactant to the immersion liquid to reduce an adherence of floating defect to the wafer or the optical element.

However, Claim 15 is different from Figure 10 of Hazelton '185. More specifically, Claim 15 recites structure for adding a surfactant to a fluid used for immersion lithography. In contrast, Figure 10 of Hazelton '185 discloses an immersion lithography system, but Hazelton '185 uses separate and distinct fluids for (1) immersion lithography and (2) cleaning. For example, the abstract of Hazelton '185 discusses both an "immersion liquid" and a "cleaning liquid", explaining that:

. . . a fluid-supplying device serves to supply an immersion liquid into this gap such that the supplied immersion liquid contacts both the optical element and the workpiece during an immersion lithography process. A cleaning device is incorporated for removing absorbed liquid from the optical element during a cleanup process. The cleaning device may make use of a cleaning liquid having affinity to the absorbed liquid The cleaning

liquid may be supplied through the same fluid-applying device provided with a switching device such as a valve.

Moreover, in regard to Figure 10, Hazelton '185 explains in paragraph [044] that:

[0044] FIG. 10 shows a different approach to the problem of cleaning the last-stage optical element 4 by applying a cleaning liquid on its bottom surface by using the same source nozzles 21 used for supplying the immersion liquid 7. For this purpose, a switch valve 25 is inserted between the supply nozzle 21 and the liquid unit 5 such that the immersion liquid 7 and the cleaning liquid can be supplied selectively through the supply nozzle 21.

In other words, Hazelton '185 teaches that, by using the valve 25 of Figure 10, it is possible to "selectively" supply either (1) immersion liquid or (2) cleaning liquid through the supply nozzle 21, but not both at the same time. Contrary to the assertions in the Office Action, Hazelton '185 does not teach that the valve 25 is used to mix the cleaning liquid with the immersion liquid. The Examiner seems to recognize this in the Office Action, for example by asserting that the valve 25 might be "capable of" providing a surfactant to the immersion liquid. This is essentially an assertion that it would be obvious to modify Hazelton '185 to do what Claim 15 recites. However, potential modifications of Hazelton '185 are irrelevant in a rejection under §102. Moreover, the cleaning liquid disclosed in Hazelton '185 is not the same as the surfactant-containing fluid recited in Claim 15. Claim 15 recites that the surfactant reduces an adherence of floating defects to the wafer or the objective lens. In contrast, Hazelton '185 teaches a cleaning fluid that has an affinity for the immersion fluid, and that can extract the immersion fluid from a lens. There is no teaching in Hazelton '185 that the cleaning liquid can reduce the adherence of floating defects to a wafer or a lens. Thus, the cleaning liquid in Hazelton '185 is different in

composition and function from the surfactant-containing fluid recited in Claim 15. Moreover, since the cleaning liquid in Hazelton '185 has an affinity for the immersion liquid, it makes no sense to suggest that this cleaning liquid could be mixed with the immersion liquid.

Under §102, Hazelton '185 must teach exactly what is recited in Claim 15, and Hazelton fails to do so. In rejecting Claim 15 for anticipation under §102, the Examiner asserts that Hazelton '185 discloses all elements recited in Claim 15. But in a §103 rejection of other claims, the Examiner admits that Hazelton '185 does not disclose a fluid containing a surfactant (stating in line 17 on page 4 of the Office Action that "Hazelton et al remain silent about providing first fluid containing surfactant"). The Examiner cannot have it both ways. After expressly admitting that Hazelton '185 does not disclose a fluid containing a surfactant, the Examiner cannot simultaneously maintain in a different part of the same Office Action that Hazelton '185 actually does disclose this. Since the Examiner explicitly admits that Hazelton '185 does not disclose each and every element recited in Claim 15, Hazelton '185 does not meet the requirements for anticipation discussed above and in MPEP §2131, and does not anticipate Claim 15 under §102. Claim 15 is therefore believed to be allowable over Hazelton '185, and notice to that effect is respectfully requested.

In Section 15 on page 13 of the present Office Action, the Examiner asserts that the foregoing arguments about Claim 15 are not persuasive, because Applicants' arguments mention a valve, but Claim 15 does not recite any valve. This assertion is respectfully traversed. The Examiner's rejection expressly discussed the valve 25 that is disclosed in Hazelton '185. In refuting that rejection, Applicants' remarks also mention the valve. In other words, Applicants discussed the valve only in responding to the Examiner's assertions about Hazelton. Contrary to the assertions in the Office Action, Applicants' remarks never even remotely suggested that Claim 15 recites a valve.

THE EXAMINER IMPROPERLY INTERPRETS THE "MEANS" LIMITATIONS

Claim 15 includes means-plus-function limitations. MPEP §2182 explains that examination of a means-plus-function limitation must involve the following "two-step" analysis:

1. In the first step, the Examiner must show that the prior art reference performs identically the same function that is specified in the means-plus-function limitation.
2. If and only if the requirement in the first step is met, then in the second step the Examiner looks to the specification and identifies all structure corresponding to that function, and then must show that the prior art structure or step is identical or equivalent to the structure, material, or acts described in the specification.

In the telephone interview with the undersigned on August 5, 2009, the Examiner asserted that he properly examined each "means" limitation in the present application, by identifying the corresponding structure in Applicants' disclosure, and by then evaluating whether Hazelton '185 has equivalent structure. However, and contrary to the assertions of the Examiner, this is not the proper approach for examining a "means" limitation. More specifically, with reference to the above discussion of MPEP §2182, the Examiner carried out only the second step in the two-step analysis required by the USPTO. The Examiner completely ignored the first step of this two-step analysis, which requires that the Examiner show Hazelton '185 performs identically the same function that is specified in Claim 15.

In this regard, and as discussed above, Claim 15 includes a recitation of means for "providing a surfactant to the first fluid to form a second fluid to reduce an adherence of floating defects to the wafer or the objective lens". But Hazelton '185 does not perform this particular function at all. Hazelton '185 thus does not meet the requirements for anticipation discussed above and in MPEP §2131, and therefore does not anticipate Claim 15 under §102. Accordingly, Claim 15 is believed to be allowable over Hazelton '185, and notice to that effect is respectfully requested.

For each of the different reasons discussed above, it is respectfully submitted that independent Claim 15 of the present application is not anticipated under §102 by Hazelton '185. Accordingly, Claim 15 is believed to be allowable, and notice to that effect is respectfully requested.

Independent Claims 6, 9 and 20

Independent Claim 6 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185 with Zhang U.S. Patent Application Publication No. 2005/0161644 and Amblard U.S. Patent No. 7,056,646. Independent Claim 9 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185 with Lyons U.S. Patent No. 7,125,652 and the Amblard patent. Independent Claim 20 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185 with Amblard. These three grounds of rejection are all respectfully traversed, for the following reasons.

HAZELTON HAS NOT BEEN SHOWN TO BE PRIOR ART

As discussed in more detail above, the Examiner has the burden of proving several points that are all necessary to properly establish that teachings in Hazelton '185 constitute "prior art" with respect to the present application. But to date, the Examiner has failed to prove all of the necessary points. Absent proof of each of these points, the Examiner has failed to carry the burden of proving that any teachings from Hazelton '185 qualify as prior art with respect to the present application. For example, the Office Action discusses in detail where relevant subject matter is believed to be disclosed in the Hazelton '185 publication, but merely makes vague and conclusory assertions that this same subject matter is also disclosed in the PCT application and the two provisional applications. The disclosures of the provisional applications are different from the disclosures of the PCT and U.S. applications. For a proper rejection, the Examiner

would need to supplement the detailed discussion of the U.S. '185 publication with a comparably detailed discussion of one of the provisional applications, plus a comparably detailed discussion of the PCT application.

A further and separate problem is that, in rejecting each of Claims 6, 9 and 20, the Examiner refers to both provisional applications rather than one provisional application. If the Examiner intends to rely on both provisional applications, then the Examiner must make a prima facie showing that it would be obvious to modify the subject matter of one provisional application in view of the other provisional application. Otherwise, the Examiner is only permitted to rely on one of the two provisional applications.

For these separate and independent reasons, the §103 rejections of Claims 6, 9 and 20 that are based in part on Hazelton '185 are all defective, and each fail to properly establish a prima facie case of obviousness. As a result, it is respectfully submitted that the rejections of Claims 6, 9 and 20 based on Hazelton '185 are each incomplete and improper, and must be withdrawn.

PTO CANNOT ESTABLISH OBVIOUSNESS WITH ART THAT TEACHES AWAY

In evaluating obviousness under §103, it is not proper to selectively consider only part of a reference, while ignoring other parts that teach away from the invention. In this regard, the provisions of MPEP §2141.02 specify that:

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. (Emphasis in original).

In the present application, Claim 6 includes a recitation of:

performing a light exposing operation on the wafer using
an objective lens immersed in a first fluid containing surfactant;
and

cleaning the objective lens after the light exposing
operation using a second fluid having a higher surfactant
concentration than the first fluid.

Claim 9 includes a recitation of:

performing a light exposing operation on the wafer using
an objective lens immersed in a first fluid that does not contain
surfactant; and

cleaning the objective lens using a second fluid comprising
a surfactant-spiked water immersion fluid.

Claim 20 includes a recitation of:

performing a light exposing operation on the wafer using
an objective lens immersed in a first fluid; and

cleaning the objective lens using a second fluid containing
surfactant.

As to the “cleaning” recited in each of Claims 6, 9 and 20, the Office Action admits that Hazelton '185 does not disclose the use of a liquid containing a surfactant, even when considered with either Zhang or Lyons. Therefore, in each rejection, the Examiner turns to Amblard, and in

particular relies on a surfactant-containing liquid disclosed in Amblard. However, Amblard teaches that this liquid, which includes a base developer, is specifically intended for use as an immersion liquid during immersion lithography. Amblard repeatedly points out that, since the immersion liquid contains a base developer, the need for a separate development step after patterning is avoided, so that the immersion lithography is more efficient. (For example, this is discussed by Amblard in lines 58-67 in column 1, lines 8-10 and 46-58 in column 2, lines 58-60 of column 7, and lines 47-50 of column 8). In the present Office Action, the Examiner asserts that Amblard's liquid (which contains a developer) could be used as a cleaning fluid, and in particular could be contacted with the immersion lithography arrangement after the immersion fluid is removed. However, Amblard explicitly teaches away from this, by repeatedly stating that "A developer is not contacted with the immersion lithography arrangement after the immersion lithography fluid is removed" (for example lines 58-60 of column 7, and lines 47-50 of column 8).

In Section 17 on page 13 of the present Office Action, the Examiner asserts in regard to "teaching away" that:

As long as the combined references teach the claimed invention
and prima facie obviousness of the combined references is
established, the it meets the claim.

In other words, the Examiner asserts that, in essence, he doesn't recognize the doctrine of "teaching away". However, the Examiner's position is directly contrary to the position of the U.S. courts, and also directly contrary to the official position of the PTO (for example as set forth in MPEP §2141.02). Evaluating the present situation using the standard of the courts and the PTO (rather than the Examiner's own inconsistent standard), Amblard does in fact teach away from the subject matter of Claims 6, 9 and 20. Consequently, and contrary to the assertions of the Examiner, the proposed combination involving Amblard would not be obvious.

Since it is well recognized that teaching away from a claimed invention is a per se demonstration of lack of prima facie obviousness, it is respectfully submitted that Hazelton '185 and Amblard do not factually support a prima facie case of obviousness under §103 with respect to any of Claims 6, 9 and 20, with or without regard to Zhang and Lyons. Accordingly, it is respectfully submitted that Claims 6, 9 and 20 are not obvious under §103 in view of Hazelton '185 and Amblard, considered with or without Zhang and Lyons. Notice to that effect is respectfully requested.

For each of the separate and independent reasons discussed above, it is respectfully submitted that the §103 rejections of Claims 6, 9 and 20 based in whole or in part on Hazelton '185 and Amblard are all defective, and each fail to properly establish a prima facie case of obviousness. As a result, it is respectfully submitted that the §103 rejections of Claims 6, 9 and 20 are each incomplete and improper, and must be withdrawn.

Dependent Claim 14

As noted above, independent Claim 9 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of Hazelton '185, Lyons and Amblard. Claim 14 depends from independent Claim 9, and stands rejected under §103 based on a proposed combination of Hazelton '185, Lyons, and Zhang. However, if Amblard is required in the §103 rejection of independent Claim 9 in order to meet limitations in Claim 9, then Amblard would also be needed to meet those same limitations of Claim 9 in the §103 rejection of dependent Claim 14. In view of the fact that the §103 rejection of Claim 14 is based only on Hazelton '185, Lyons and Zhang (and not Amblard), it is respectfully submitted that the Examiner has failed to establish a prima facie case of obviousness under §103 with respect to Claim 14, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2-5 and 7-8, Claims 10-14, Claims 16-19 and Claims 21-27 respectively depend from Claim 6, Claim 9, Claim 15 and Claim 20, and are also believed to be allowable over the art of record, for example for the same reasons discussed above in association with Claims 6, 9, 15 and 20, respectively.

Conclusion

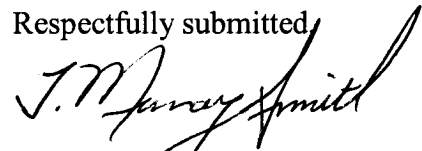
Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicants believe that no additional fees are due, the Commissioner is hereby authorized to charge any fees required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone, LLP.

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Enclosures: None

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